International Journal of Mycobacteriology xxx (2016) xxx–xxx

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Pathological, bacteriological, and molecular characteristics of natural outbreaks of Johne's disease in goats of Fars Province, Iran

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ARTICLE INFO

Article history:
Received 17 October 2016
Accepted 6 November 2016
Available online xxxx

Keywords:
Culture
Goat
IS 900
Paratuberculosis
Pathology

ABSTRACT

Objective/Background: Johne's disease, also called paratuberculosis, is a very important chronic infectious disease of ruminants worldwide. The causative agent is an acid-fast bacterium, *Mycobacterium avium paratuberculosis* (MAP). Finding a precise method for detecting MAP is essential for the control and eradication of this disease in small ruminant herds.
Methods: In this study, appropriate samples were obtained from the ileum, cecum, colon, and mesenteric lymph nodes of 10 suspected naturally infected goats. Each sample was divided to two parts: the first part was stored at −20 °C for bacteriologic culture and the second part was placed in 10% neutral formalin for molecular and histopathologic examination. To isolate MAP, the double incubation method was used for decontaminating the tissues and Middlebrook 7H9 broth-based culture associated with OADC (oleic acid, albumin, dextrose, and catalase) supplement with/without mycobactin J were used. Polymerase chain reaction (PCR; IS 900) was performed for media with positive acid-fast staining.
Results: Acid-fast staining was positive in 40% of ileum samples, 50% of cecum samples, 40% of colon samples, and 50% of lymph node samples with mycobactin J and in 60% of ileum samples, 60% of cecum samples, 40% of colon samples, and 40% of lymph node samples without mycobactin J. All samples were confirmed by IS 900 PCR assay. Diffuse granulomatous enteritis with multibacillary lesions and paucibacillary multifocal lymphadenitis associated with calcification were diagnosed histopathologically.
Conclusion: MAP detection in intestinal content and in tissues is quite necessary for the diagnosis, control, and eradication of this disease in small ruminant herds.

Conflicts of interest

The authors have no conflicts of interest to declare.

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Peer review under responsibility of Asian African Society for Mycobacteriology.
http://dx.doi.org/10.1016/j.ijmyco.2016.11.016